



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. FAA-2013-0601; Special Conditions No. 25-527-SC]

Special Conditions: Learjet Inc. Model LJ-200-1A10; Airplane Fuselage Post-Crash Fire Survivability.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for the Learjet Inc. Model LJ-200-1A10 airplane. This airplane will have a novel or unusual design feature associated with advanced composite materials in the construction of its fuselage and wings. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

EFFECTIVE DATE: [Insert date 30 days after Federal Register publication].

FOR FURTHER INFORMATION CONTACT: Alan Sinclair, Airframe/Cabin Safety Branch, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue SW., Renton, Washington, 98057-3356; telephone 425-227-2195; facsimile 425-227-1320; e-mail alan.sinclair@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

On February 9, 2009, Learjet Inc. applied for a type certificate for their new Model LJ-200-1A10. The Model LJ-200-1A10 is a business-class airplane with two high-bypass turbine engines and interior seating configuration for up to 10 passengers. The Model LJ-200-1A10 is the first airplane manufactured by Learjet Inc. to utilize advanced composite materials in the construction of its fuselage and wings.

Type Certification Basis

Under the provisions of Title 14, Code of Federal Regulations (14 CFR) 21.17, Learjet Inc. must show that the Model LJ-200-1A10 meets the applicable provisions of part 25, as amended by Amendments 25-1 through 25-127.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 25) do not contain adequate or appropriate safety standards for the Model LJ-200-1A10 because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same or similar novel or unusual design feature, the special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the Model LJ-200-1A10 must comply with the fuel-vent and exhaust-emission requirements of 14 CFR part

34 and the noise certification requirements of 14 CFR part 36, and the FAA must issue a finding of regulatory adequacy under § 611 of Public Law 92-574, the “Noise Control Act of 1972.”

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type-certification basis under § 21.17(a)(2).

Novel or Unusual Design Features

The Model LJ-200-1A10 will incorporate the following novel or unusual design features:

The Model LJ-200-1A10 is the first airplane manufactured by Learjet Inc. to utilize advanced composite materials in the construction of its fuselage and wings. In accordance with § 21.16, fuselage structure fabricated from monolithic carbon-fiber reinforced plastic (CFRP) prepreg material (reinforcement fiber pre-impregnated with a thermoplastic or thermoset resin matrix) constitutes a novel and unusual design feature for a large transport-category airplane certificated under 14 CFR part 25.

Discussion

Existing regulations do not adequately ensure that composite structure offers passengers the same protection from an on-ground, post-crash fire condition as would a conventional aluminum structure. Learjet is introducing a new material that may have different toxicity characteristics than those of traditional materials. Service experience has shown that, in post-crash fires, traditional aluminum structural materials emit acceptable toxicity levels. Therefore, it is necessary to ensure that the material being utilized does not reduce the survivability of the passengers during a post-crash fire, or provide levels of toxic fumes that would be lethal or incapacitating, preventing evacuation of the aircraft following a crash scenario.

These special conditions are necessary to ensure a level of safety equivalent to that provided by 14 CFR part 25. Regulations applicable to burn requirements, including §§ 25.853 and 25.856(a), remain valid for this airplane but do not reflect the threat generated from toxic levels of gases produced from carbon-fiber/resin system materials following a post-crash fire.

Discussion of Comments

Notice of proposed special conditions no. 25-13-13-SC, for Learjet Inc. Model LJ-200-1A10 airplanes, was published in the Federal Register on November 5, 2013 (78 FR 66317). No comments were received, and the special conditions are adopted as proposed.

Applicability

As discussed above, these special conditions are applicable to the Model LJ-200-1A10. Should Learjet Inc. apply at a later date for a change to the type certificate to include another airplane model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features on one model of airplanes. It is not a rule of general applicability.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for Learjet Inc. Model LJ-200-1A10 airplanes.

The Learjet Model LJ-200-1A10 must show that toxic levels of gases produced from the composite-material system are in no way an additional threat to the passengers and their ability to evacuate when compared to an aluminum-constructed aircraft.

Issued in Renton, Washington, on January 31, 2014.

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John P. Piccola, Jr.
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service

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